

What is claimed is:

1. A method for detecting a potential problem in the transmission of a sequence of packets via an Internet Protocol (IP) network, said transmission occurring from a signal origin point to a signal destination point, said method comprising the steps of:
 - (a) examining an original packet sequence to be sent from said origin point, said original packet sequence comprising periods of silence between packets to be transmitted, to determine one or more extended silence periods wherein said period of silence exceeds a predetermined time duration;
 - 10 (b) introducing a keep-alive signal packet into each of said extended silence periods thereby converting said original packet sequence into a modified packet sequence;
 - (c) transmitting said modified packet sequence over the IP network; and,
 - (d) detecting whenever at least one packet of said modified packet sequence
15 has not been received at the signal destination point during a specified time interval.
2. The method of claim 1 wherein said original packet sequence comprises RTP packets and said keep-alive signal comprises RTCP packets.
- 20 3. The method of claim 2 wherein said original packet sequence comprises VoIP data.
4. The method of claim 3 further comprising the step of notifying individual users at both the signal origin point and the signal destination point of the potential
25 problem with the IP network.

5. The method of claim 4 wherein said notification comprises the step of providing an estimated time to repair.

6. The method of claim 3 further comprising the step of notifying all individuals currently active on the IP network of the potential problem with the IP network.

7. The method of claim 3 further comprising the step of notifying all users on the IP network of the potential problem with the IP network.

8. The method of claim 1 wherein said IP network is administered by a network manager, and said method further comprises the step of notifying the network manager of the potential problem with the network.

9. The method of claim 8 wherein a plurality of transmissions of sequences of packets is sent via an identifiable routing path over the IP network, said routing path comprising multiple IP network components; said method further comprising the step of:

- (e) detecting a plurality of potential problems; and,
- (f) identifying a component common to said detected potential problems.

10. A method for detecting a potential problem in the transmission of a sequence of packets via an Internet Protocol (IP) network, said transmission occurring from a signal origin point to a signal destination point, said method comprising the steps of:

(g) introducing, at a fixed period, a keep-alive signal packet into an original packet sequence, thereby converting said original packet sequence into a modified packet sequence;

(h) transmitting said modified packet sequence over the IP network; and,

(i) detecting whenever at least one packet of said modified packet sequence has not been received at the signal destination point during a specified time interval.

11. The method of claim 10 wherein said keep-alive signal comprises RTCP packets.

12. A method for notifying users of an IP network of a problem in the transmission of a sequence of packets on said IP network, said transmission occurring from a signal origin point to a signal destination point, said method comprising the steps of:

(j) detecting whenever at least one packet of said sequence has not been received at the signal destination point during a specified time interval; and,

(k) notifying the users of said problem.

13. A system for detecting a potential problem in the transmission of a sequence of packets via an Internet Protocol (IP) network, said transmission occurring from a signal origin point to a signal destination point, said system comprising:

(l) means for examining an original packet sequence to be sent from said origin point, said original packet sequence comprising periods of silence between packets to be transmitted, to determine one or more extended silence periods wherein said period of silence exceeds a predetermined time duration;

(m) means for introducing a keep-alive signal packet into each of said extended silence periods thereby converting said original packet sequence into a modified packet sequence;

(n) means for transmitting said modified packet sequence over the IP network;
and,

(o) means for detecting whenever at least one packet of said modified packet sequence has not been received at the signal destination point during a specified time interval.

14. The system of claim 13 wherein said original packet sequence comprises RTP packets and said keep-alive signal comprises RTCP packets.

15. The system of claim 14 wherein said original packet sequence comprises VoIP data.

16. The system of claim 15 further comprising a means for notifying individual users at both the signal origin point and the signal destination point of the potential problem with the IP network.

17. The system of claim 16 wherein said means for notification comprises a means for providing an estimated time to repair.

18. The system of claim 15 further comprising a means for notifying all
5 individuals currently active on the IP network of the potential problem with the IP network.

19. The system of claim 15 further comprising a means for notifying all users on the IP network of the potential problem with the IP network.

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20. The system of claim 19 wherein said IP network is administered by a network manager, and said system further comprises a means for notifying the network manager of the potential problem with the network.

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21. The system of claim 20 wherein a plurality of transmissions of sequences of packets is sent via an identifiable routing path over the IP network, said routing path comprising multiple IP network components; said system further comprising:

(p) means for detecting a plurality of potential problems; and,

(q) means for identifying a component common to said detected potential
20 problems.

22. A system for detecting a potential problem in the transmission of a sequence of packets via an Internet Protocol (IP) network, said transmission occurring from a signal origin point to a signal destination point, said system comprising:

5 (r) means for introducing, at a fixed period, a keep-alive signal packet into an original packet sequence, thereby converting said original packet sequence into a modified packet sequence;

(s) means for transmitting said modified packet sequence over the IP network;
and,

10 (t) means for detecting whenever at least one packet of said modified packet sequence has not been received at the signal destination point during a specified time interval.

23. The system of claim 22 wherein said keep-alive signal comprises RTCP
15 packets.

24. A system for notifying users of an IP network of a problem in the transmission of a sequence of packets on said IP network, said transmission occurring from a signal origin point to a signal destination point, said system comprising:

20 (u) means for detecting whenever at least one packet of said sequence has not been received at the signal destination point during a specified time interval; and,

(v) means for notifying the users of said problem.

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